

UNITED STATES DEPARTMENT OF AGRICULTURE

FARM SECURITY ADMINISTRATION

REGION I

GENERAL SPECIFICATIONS

FOR

MATERIALS AND CONSTRUCTION

108-1-

LIB

AUG 26 1946

UNITED STATES DEPARTMENT OF AGRICULTURE

LAND OFFICE

SECTION 1

GENERAL INFORMATION

101

UNITED STATES DEPARTMENT OF AGRICULTURE

1. GENERAL SPECIFICATIONS

(1) General

The General Specifications are a part of these specifications, and insofar as they refer to sub-contractors will be enforced with sub-contractors employed by the general contractor on the work.

(2) Materials and Methods

All materials and methods of application and construction described under these General Specifications are applicable to all of the construction work except as modified in the accompanying Scope of Work.

(3) Location

The buildings shall be located as directed by the Owner and as approved by the Regional Engineer or his representative.

(4) Clearing the Site

The site shall be cleared only where the new buildings are to be located. Material cleared from the site of operations, if not to be used in the construction, is to be deposited as directed by the Owner, or the Regional Engineer or his representative.

(5) Excavation and Backfill

All necessary excavation shall be performed to the depth indicated on the plans. Footings shall rest on solid, undisturbed material and no backfilling under foundations due to excessive excavating will be permitted. If after excavating to the depth indicated on the plans, the material the footings are to rest on does not comply with the afore-mentioned requirements, the Regional Engineer or his representative and the Owner shall be notified of the conditions, whereupon the Regional Engineer or his representative shall examine the material and a change in the specifications and adjustments of the contract price shall be agreed upon and executed by person or persons concerned, with the approval of the Regional Engineer and other FSA personnel to whom authority has been delegated, for excavating to the necessary satisfactory depth. The work shall proceed on execution of the change order and adjustment of the contract price.

On completion of the foundations and footings and on removal of the forms, the trenches shall be backfilled solidly, with material deposited in 12" layers and tamped firmly in place before application of any succeeding layer. The grade, on completion of backfill, shall slope slightly away from the exterior walls.

(6) Grading and Filling

All necessary fill shall be provided for installation of concrete floor and ramps, backfilling of trenches; and to bring the grade to grade line around foundation walls for a distance of 4'-0" from the exterior of said walls.

The fill shall be installed, tamped and rough graded. If the fill is of gravel, the fill shall be thoroughly wetted in place, applied in layers not exceeding 6" and each layer thoroughly tamped before application of the succeeding layer.

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The buildings shall be located as directed by the Owner and as approved by the Regional Engineer or his representative.

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The fill shall be installed, tamped and rough graded. If the fill is of gravel, the fill shall be thoroughly watered in place, applied in layers not exceeding 6" and each layer thoroughly tamped before application of the succeeding layer.

The fill may be either bank-run-gravel or field stone at least 4" in diameter or a combination of field stone and bank-run-gravel.

2. CONCRETE (PLAIN)

All materials for concrete such as cement, sand, and stone shall be measured by volume. The materials shall be in a dry condition or allowance made for moisture content in measuring the volume of materials.

The concrete mixture shall be one (1) part of cement to two (2) parts of sand and four (4) parts of stone with not more than 6 gals. of water per cu. ft. of cement being used in mixing.

The cement used shall meet the requirements for Portland cement as stated for the Standard Specifications and Tests for Portland cement, revised, 1933, by the American Society for Testing Materials.

The sand shall be clean, hard, strong, durable, uncoated grains free from lumps, organic matter or other deleterious material and at least 85% shall pass through a No. 4 sieve and not more than 5% through a No. 100 sieve; and shall be well graded.

The stone shall be crushed stone or washed gravel; and shall be clean, hard, durable; and shall be free from soft or thin pieces, organic material or other deleterious matter; and shall be in particles 1/4" in size to 1 1/2" and shall be well graded.

The water shall be clean and free from oil, acid, alkali, organic matter and other deleterious matter.

The concrete shall be well mixed before placing, and if a machine mixer is used, each batch shall be mixed for a minimum of two (2) minutes.

The concrete shall be placed in such manner as to prevent undue segregation of the materials, and where walls or footings are continuous, the concrete shall be poured continuously on such joints and anchors provided as are approved by the Regional Engineer or his representative.

The concrete shall be well spaded in place and walls left smooth and free from imperfections.

The forms used for concrete shall be water tight, rigidly braced and shall provide smooth, true and level surfaces.

3. MORTAR

All mortar shall be cement mortar. Hydrated lime in volume of not more than 15% of the volume of the cement used may be added in lime putty form to give workability to the aggregate.

The mixture shall be one (1) part of cement to three (3) parts of sand. The measurement shall be by volume as described for concrete in Section 2. Water shall be added to the dry mixture and the mixture brought to proper consistency for use.

The fill may be either hand-placed or placed by means of a conveyor or a similar device and hand-placed.

2. GRAVEL (1/2)

All materials for gravel such as gravel, sand, and stone shall be measured by volume. The material shall be in a condition to allow same made for concrete contact in measuring the volume of material.

The concrete shall be one (1) part of cement to two (2) parts of sand and four (4) parts of gravel with not more than 5% of water per cu. ft. of concrete being used in making.

The cement used shall meet the requirements for Portland cement as stated for the Standard Specifications and Tests for Portland cement, revised, 1933, by the American Society for Testing Materials.

The sand shall be clean, hard, strong, angular, rounded grains free from holes, organic matter or other deleterious material and at least 85% shall pass through a No. 20 sieve and not more than 5% through a No. 100 sieve; and shall be well graded.

The stone shall be crushed stone or natural gravel; and shall be clean, hard, strong, and shall be free from dirt or thin plates, organic matter, or other deleterious material; and shall be in gradations 1/2" to 4" and shall be well graded.

The water shall be clean and free from oil, acid, alkali, organic matter and other deleterious matter.

The concrete shall be well mixed before placing, and if possible, mixed in batch, each batch shall be placed for a minimum of two (2) minutes.

The concrete shall be placed in such manner as to prevent segregation of the materials, and where walls or footings are constructed, the concrete shall be placed continuously on each joint and surface, and shall be approved by the National Highway or the concrete contractor.

The concrete shall be well spread to place and walls left smooth and free from imperfections.

The forms used for concrete shall be water tight, rigidly braced and shall provide smooth, true and level surfaces.

3. REBAR

All rebar shall be cement mortar, galvanized steel or volume of not more than 1% of the volume of the concrete may be added in this party that is give responsibility to the engineer.

The rebar shall be one (1) part of cement to three (3) parts of sand. The measurement shall be by weight as determined for concrete in Section 2. Rebar shall be added to the concrete and the concrete brought to proper consistency by the engineer.

The sand, cement and water used for mortar shall be described for concrete in Section 2 and shall be well mixed.

Mortars shall not be retempered for use and mortars that have stood more than one (1) hour shall not be used.

4. BRICKWORK

Brick shall be hard-burned common brick of clay or shale, sound, compact, reasonably uniform in shape, free from stones or pebbles and of size $2\frac{1}{4}"$ x $3\frac{3}{4}"$ x 8".

Brick shall be laid plumb and true and properly bonded on full mortar beds with neatly struck uniform joints.

5. CONCRETE BLOCKS (HOLLOW)

Concrete blocks shall be made from Portland cement and such aggregates as sand, gravel or crushed stone. All units shall be sound and free from cracks or other defects that would interfere with the proper setting of the units or impair the strength or permanence of the construction. The units shall have shells and webs at least $\frac{3}{4}"$ in thickness. All blocks shall be load bearing type and unless otherwise specified with the following compressive strength requirements:

Minimum thickness of shell $1\frac{1}{4}"$ - Minimum Compressive Strength per sq. in. of gross area 600#.

Minimum thickness of shell $\frac{3}{4}"$ to $1\frac{1}{4}"$ - Minimum Compressive Strength per sq. in. of gross area 800#.

The concrete blocks shall be laid plumb and true and properly bonded on full mortar bed joints with neatly struck uniform joints. Special blocks shall be used for all corners, joints, etc.

6. LUMBER

All soft wood lumber used shall be graded according to the rules of the Northeastern Lumber Manufacturers' Association or equal and the lumber and grades used shall be as follows:

(a). Beams, joist, rafters, studs, plates, sills, headers, posts, bridging and lumber 2" in thickness or over shall be No. 2 dimension Eastern hemlock or equal of size $\frac{1}{4}"$ scant of nominal size, air-dried, or equal, to moisture content not exceeding 20% and D4S.

(b). Sheathing, sub-flooring, ceiling, roof boards, flooring except hardwood and lumber 1" in thickness or under shall be No. 2 Eastern hemlock boards or equal, air-dried or equal to moisture content not exceeding 20% and D & M.

(c). Exterior vertical siding shall be No. 1 Eastern hemlock boards or equal, air-dried or equal to 20% moisture content and D4S.

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- (d) Drop siding shall be 1" x 6" nominal size, "C" grade, Eastern hemlock or equal.
- (e) Bevel siding shall be 7/16" x 5½", "A" grade Northern white pine or equal.
- (f) Exterior trim shall be of Northern white pine or equal, nominal thickness of 1¾", "C" grade and D4S.
- (g) Interior trim shall be of nominal thickness of 1", Northern white pine or equal, "B" Grade and D4S.
- (h) Standard mouldings shall be Northern white pine of the so-called "7,000" series as set up under the rules of the American Lumber Standards.

7. PLYWOOD

Plywood shall be Douglas fire plywood or equal graded to the rules set forth as "Douglas Fire Plywood, Commercial Standard CS45-33", revised 1938, or equal and the grades shall be used as follows:

- (a) Exterior sheathing of plywood shall be of grade "Exterior Sheathing".
- (b) Concrete forms of plywood shall be of grade "Concrete Form Grade-Exterior."
- (c) Interior walls, ceilings and panels of plywood shall be "GIS" grade.

8. WOOD SHINGLES

Wood shingles where specified shall be No.1 grade, red cedar or equal, edge grained, standard thickness 5/2, 18" in length and shall be well nailed with at least two nails in each unit, laid with 5½" exposure to weather and minimum side lap of 1½".

9. METAL ROOFING

Metal roofing where specified shall be 28 gauge, steel roofing of 3-V crimp type, coated with zinc oxide coating of 2 ozs. per square. The roofing shall be applied with 8d lead headed nails 12" c.c. All fittings shall be furnished and installed such as ridge roll, valleys, flashings, etc., and of the same material as specified for the roofing.

10. ASPHALT ROOFING

- (a) Asphalt roll roofing where specified shall bear Class C Underwriter's Label and be smooth surface of weight of 65# per roll of 108 sq. ft. The roofing shall be applied, only over a solid, smooth roof deck, in rolls 18" in width with 16" exposure to the weather and with 2" laps well cemented down and shall be "blind" nailed with large head galvanized roofing nails.
- (b) Asphalt shingles where specified shall be of plain color, rag felt base, slate surfaced, 210# per square, thick butt shingles and bear Class C Underwriter's Label. The shingles shall be applied only over

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Section 3

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Section 4

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a solid, smooth roof deck and the roof deck shall be covered with saturated asphalt felt paper, 15# per square, with 2" laps before application of the shingles. Metal eave drip, ridge roll, valleys of 14", 28 gauge galvanized steel shall be furnished and installed over a 36" width strip of 55# smooth surface roll roofing and any other fittings necessary to complete the roof shall be furnished and installed. The roofing shall be applied according to the manufacturer's directions as regards nailing and starting.

11. ASBESTOS SHINGLE SIDING

Asbestos shingle siding where specified shall be of waterproof asbestos cement shingles, 12" x 24" of minimum weight of 180# per square. The shingles shall be applied over a 30# saturated asphalt felt paper with all necessary cant strips mouldings and joint backing strips. The shingles shall be nailed securely and cadmium coated or equal nails shall be used where nails are exposed. All vertical joints made by the shingles with frames, etc., shall be caulked tightly with caulking compound.

12. HARDWARE

When windows and doors are installed, they shall be equipped with the necessary hardware applicable to the use for which it is ordinarily required. Hardware exposed to the weather or continuous moist conditions shall be galvanized.

13. FLASHING AND COUNTER-FLASHING

Flashing and counter-flashing shall be 29 gauge, galvanized steel. Flashing shall be installed over the exterior head casing of all door and window frames. Flashing and counter-flashing shall be installed where a vertical surface adjoins any roof surface.

14. PLUMBING SYSTEMS

Plumbing systems shall be installed to comply with all governing local, state and federal codes and regulations.

In making the installation of the plumbing system, no structural member shall be cut or weakened unless proper provisions are made so that the structural strength of the building is left undiminished. The plumbing system on completion shall be left in working order fully connected to all fixtures, sanitary and water systems.

Unless otherwise prohibited or specified, all main waste lines and stacks shall be 4", standard weight, cast iron, and all joints shall be caulked with oakum and lead to withstand a water test. All main waste lines shall be vented by a stack extended through the roof and flashed with a roof flange. All waste lines extending a horizontal distance of more than 8' from the main vented stack shall have a separate flashed vent through the roof. Accessible cleanouts shall be provided where a waste line changes direction and at a point where the main waste line joins the waste line to the sanitary system.

Plumbing fixtures shall be furnished and installed complete with all traps, faucets, fittings, floor or wall flanges, trim and piping.

15. WATER SYSTEMS

Water systems when installed shall be connected to source of water supply, power, and all fixtures, and left ready for use. Water systems using a pressure supply tank shall be equipped with automatic controls, a safety valve and pressure gauge, all of which shall be installed and connected to the pump.

16. SANITARY SYSTEMS

Sanitary systems shall be installed and connected to the waste lines of the plumbing system as follows:

(a) Where a septic tank is specified, the tank shall be standard weight, 14 gauge, copper bearing steel, welded, coated inside and out with asphalt and complete with built-in connections and baffle plates or equal. The septic tanks shall be connected to the waste lines from the building and to the main line of the disposal field with cast iron soil pipe as specified for main waste line in Item 14. Unless otherwise specified the size of the tank shall be 300 gallons capacity.

(b) Where a grease trap is specified, it shall be of similar construction to that specified for the septic tank or equal, and unless otherwise specified, the size shall be 25 gallons capacity. The grease trap shall be installed on the waste line of the kitchen sink.

(c) Disposal Field - where a disposal field is specified, the following shall apply: Install 30 linear feet of 4" agricultural tile per person capacity of the septic tank. Install all pipe 20" to 24" below the surface of the ground in trenches at least 24" in width. Agricultural tile joints shall be 1/2" apart with the upper half covered with tar or asphalt felt paper before covering. Fill the trench with crushed stone or gravel to a point 6" above the pipe and complete the filling of the trench with dirt. Branches when installed shall be 8'-0" to 10'-0" c.c. and at right angles to the main branch. The field shall be installed at least 200' from the source of any water supply and where it will not drain into any water supply. The main from the septic tank to the field shall not be included in the amount of tile in the disposal field.

17. ELECTRICAL SYSTEM

(a) All materials and installation of the electrical system shall meet the requirements of the National Board of Fire Underwriters and shall comply with all governing state and local codes and regulations. On completion of the installation of the electrical system, the completed work shall be inspected by a properly designated person representing the Board of Fire Underwriters and a "Certificate of Approval," from the Fire Underwriters shall be furnished to the Regional Engineer or his representative.

(b) The electric service shall be a 60 ampere, 110-220 volt, A.C., 3-wire meter service with connecting lines to the source of supply and buildings. The exterior wiring shall be weather proof. The service shall be complete with all necessary poles fittings, wire, safety switches, circuit and fuse boxes, and meter boards.

(c) The interior wiring of buildings shall be either armored or non-metallic sheathed cable of 3 wire type using one wire for grounding all outlets, switches and receptacles. The conductor size shall be not less than No. 14 gauge for lighting circuits, not less than No. 12 gauge for convenience outlets, and convenience outlets and lighting outlets shall not be on the same circuit. All wiring in the house, except basement, shall be run concealed in floor and walls. All wiring in other buildings may be run exposed.

(d) The interior wiring shall include all switches, receptacles, convenience outlets, plates and 40 watt bulbs for each lighting fixture. Circular switches and receptacle plates shall be permitted only in out-buildings. House convenience outlets shall be duplex type, 15 ampere, 125 volts. Switches shall be mounted 4'-6" above the floor on strike side of the door and adjacent thereto. Wall convenience outlets shall be mounted 18" above the floor and no receptacle shall be permitted in the floor.

(e) The number, schedule and location of outlets shall be as outlined in the "Scope of Work" attached.

(f) The electric fixtures and the installation thereof shall be included in the installation, and shall be selected by the Owner and approved by the Regional Engineer or his representative.

18. PAINTING

(a) All surfaces to be painted shall be dry; all dirt or other extraneous matter which would affect the finished work shall be removed; all surfaces shall be cleaned and dusted; all old surfaces shall be wire brushed and scraped free of loose and scaling paint; all knots, pitch pockets, etc., are to be coated with shellac before paint is applied.

(b) All exterior woodwork shall be painted two coats of paint and all woodwork of windows, window frames, doors and door frames shall be painted two coats of paint on all sides both exterior and interior. The body and trim shall be the same color.

(c) The exterior paint shall be ready-mixed paint. The pigment shall be composed of white lead (basic carbonate, basic sulphate, or a mixture thereof) zinc oxide, and white mineral pigments containing no lead or zinc compounds, pure tinting colors, or any mixture thereof. The white lead content of the pigment shall in no case be less than 60% of the total pigment and the sum of the white lead and zinc oxide shall in no case be less than 90% of the total pigment. The liquid in ready-mixed paint shall contain not less than 80% linseed oil, the balance to be combined thinner and drier. The thinner shall

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(e) The number, location, and location of outlets shall be as indicated in the "Plans of Work" attached.

(f) The electric fixtures and the installation thereof shall be in accordance with the National Electrical Code, and shall be approved by the local authority having jurisdiction.

12. PAINTING

(a) All surfaces to be painted shall be first of all prepared by removing all loose material, and then by cleaning and dusting. All surfaces shall be prime coated and painted with one coat of white lead paint, and then with a second coat of white lead paint.

(b) All exterior woodwork shall be painted two coats of white lead paint, and then with a second coat of white lead paint.

(c) The exterior paint shall be ready-mixed paint. The pigment shall be composed of white lead (basic carbonate), zinc white, and zinc oxide. The pigment shall be mixed with oil, and then with a small amount of turpentine. The pigment shall be mixed with oil, and then with a small amount of turpentine. The pigment shall be mixed with oil, and then with a small amount of turpentine.

be turpentine, volatile mineral spirits, or any mixture thereof. The linseed oil shall be any mixture of raw, boiled, bodied linseed oil. The paint shall be well ground, shall not settle badly or cake in the container, shall be readily broken up with paddle to a smooth, uniform paint of good brushing consistency and shall dry within 18 hours to a full oil gloss, without streaking, running or sagging. The paint shall cover one coat, 500 sq. ft. per gallon on new wood surfaces. The color shall be as selected by the Owner. The paint shall weigh not less than 16-3/4 lbs. per gallon.

